

JOHN ADT.

2 Sheets--Sheet 1.

Improvement in Machines for Making Staples.

No. 124,107.

Patented Feb. 27, 1872.

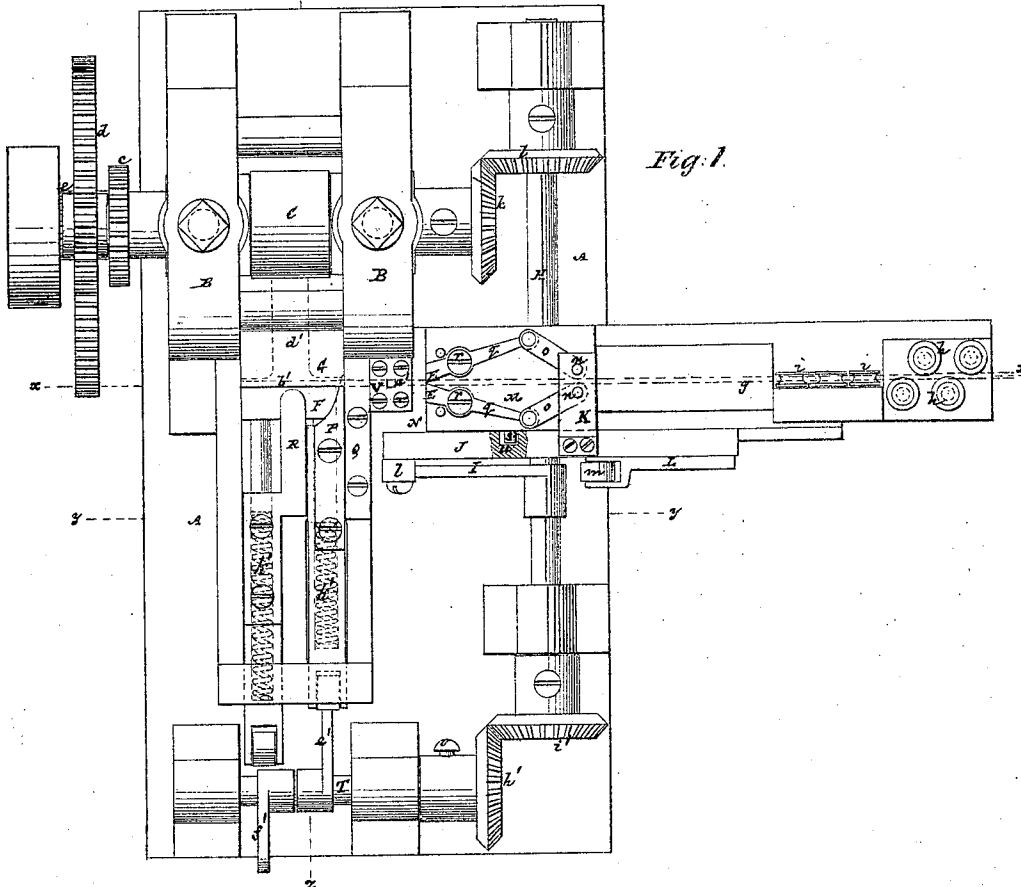


Fig. 1.

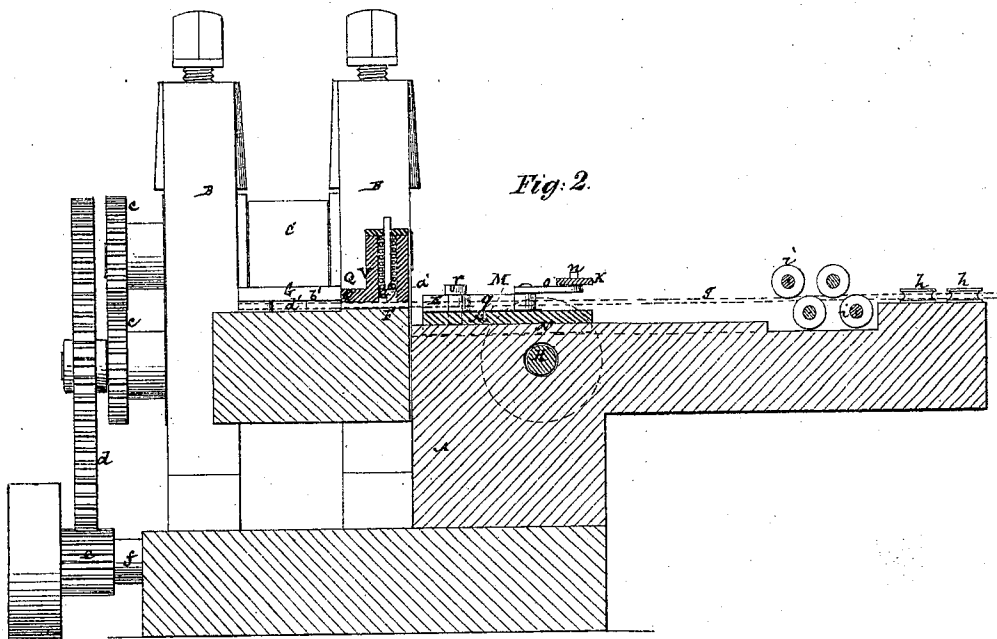


Fig. 2.

Witnesses:
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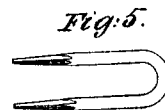
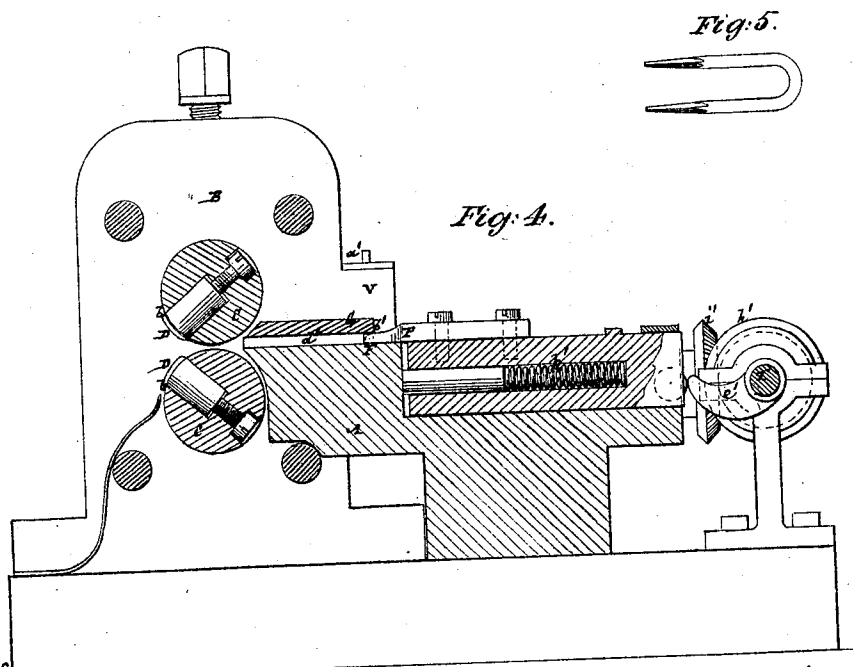
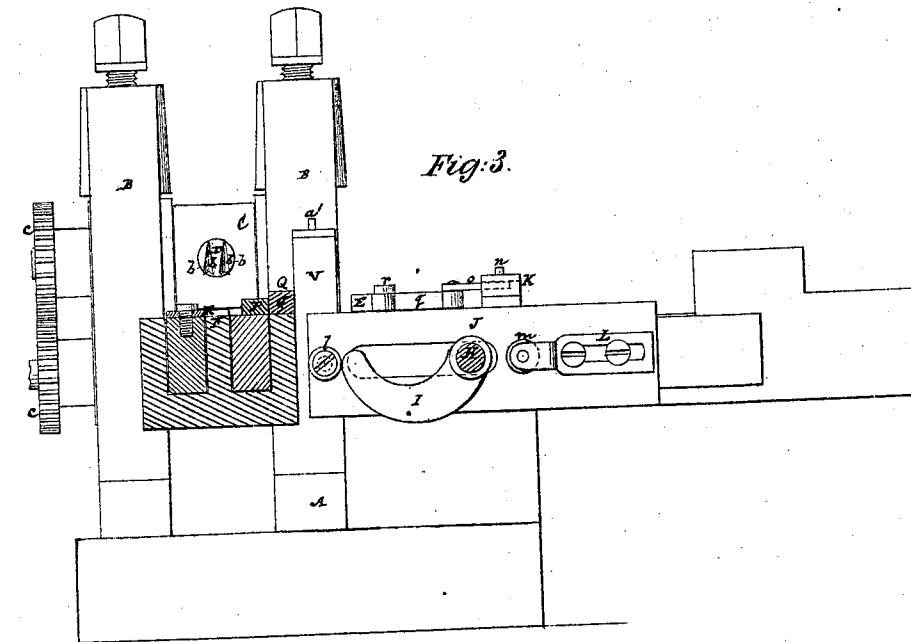
Inventor:
John Adt

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Improvement in Machines for Making Staples.

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Witnesses
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Inventor.
John Adt

UNITED STATES PATENT OFFICE.

JOHN ADT, OF NEW HAVEN, CONNECTICUT.

IMPROVEMENT IN MACHINES FOR MAKING STAPLES.

Specification forming part of Letters Patent No. 124,107, dated February 27, 1872.

To all whom it may concern:

Be it known that I, JOHN ADT, of the city and county of New Haven, in the State of Connecticut, have invented a new and useful Improvement in Machines for Making Staples; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing forming part of this specification, and in which—

Figure 1 represents a plan of a machine for making staples constructed in accordance with my invention; Fig. 2, a vertical section of the same at the line *x x*, in Fig. 1; Fig. 3, a similar section at the line *y y*; and Fig. 4, a vertical section at the line *z z*. Fig. 5 is a view of a staple detached, as made by the machine.

Similar letters of reference indicate corresponding parts throughout the several figures of the drawing.

My invention consists in certain combinations of devices for making staples from a continuous length of wire without heating the latter, yet with the points drawn out as distinguished from being sheared, and resulting in a great economy of time, labor, and fuel, as compared with the ordinary process of making staples.

In the accompanying drawing, A represents the frame of the machine; and B B, bolsters holding an upper and a lower pointing-roll, C C, each of which is fitted with an adjustable and removable die, D, formed with a pair of pointing surfaces or projections, *b b*, arranged to act upon the ends of both legs of the staple simultaneously, and both dies being so set in relation with each other by the gear of the rolls together that they simultaneously operate upon the several sides of the ends of the two legs of the staple to form the points, mainly by drawing on said ends, as the rolls in revolving pass the staple between or through them. The rolls C C are simultaneously driven at like velocities by means of pinions *c c*, which receive their motion by a spur-wheel, *d*, arranged on the shaft of one of the rolls and operated by a pinion, *e*, fast to a driving-shaft, *f*. The upper roll is made adjustable up or down, to provide for making staples from different thicknesses of wire, the dies D D being changed to suit, and so that the point-drawing surfaces or projections *b b* in each die are

disposed at the requisite distance apart to conform to different widths of staple. The wire *g* to be worked into staples is taken from a reel and passed in between guides and straightening-rollers *h* and *i* to a pair of intermittently-reciprocating jaws, E, which, in their forward stroke, take hold of the wire and feed it the necessary distance across the bed F, beneath a female doubling die and guide, G, in front of the rolls, but which jaws, in their backward stroke, release hold of the wire.

Said jaws are constructed and operated as follows: On the shaft of the lower roll C is a bevel-wheel, *k*, which gears with a bevel-wheel, *l*, upon a shaft, H. This shaft carries a wiper, I, that acts alternately against rollers *l* attached to a slide, J, with which the pivots *n n* of the rear arms *o o* of the jaws are connected by a strap or saddle, K. The rear roller *m* is attached to the slide J by an adjustable piece, L, to regulate the feeding stroke of the jaws by the action of the wiper I, according to the length of staple to be produced. M is an independent slide or movable bed-plate arranged to travel over a fixed bed, N, and driven by the slide J in a free or loose manner for the purpose of opening and closing the jaws E at the ends of their forward and backward stroke. Said jaws have their forward arms *q q* pivoted at *r r* to form fulcrums, and are jointed at their back ends to the rear arms *o o*. By means of the connection, as described, of the jaws by their pivots *n n* with the slide J, and by their fulcrums *r r* with the slide M, it follows that if the latter slide has a limited amount of lost motion, relatively to the slide J by which it is driven, as by a pin, *s*, on the slide M fitting loosely within a slot or cavity, *u*, in the slide J, the jaws E will be caused to seize the wire at their forward ends and feed or carry it forward as the slides commence and continue their forward stroke, and said jaws be released from hold on the wire as they commence and continue their back stroke.

Each time the wire is fed forward by the jaws it is passed or threaded through a block, V, onto the bed F, said block being provided with a spring-holder, *a'*, beveled at its lower end or nose so as to permit of the free passage beneath it of the wire when being fed forward, but digging or catching into the wire as the jaws retire, to prevent the fed wire from spring-

ing back. An adjustable gauge may be provided on the off side of the bed F for the forward end of the fed portion of the wire to strike against. After the wire has been thus fed beneath a lip or overhanging portion, *b'*, of the female doubling die and guide G, a cutter, P, is projected toward said die along a guide-strip, Q, on the inner face or side of the block V, and caused to cut off the wire to its required length for a staple. An intermittently-reciprocating male doubler or plunger, R, then moves forward over the bed F, and, catching on the cut piece of wire in its middle, bends or doubles and forces it into the female doubling-die G, formed with a groove or passage, *d'*, on its under side, running toward the die portion of the rolls. This shapes the staple, which is left in the passage *d'* to be delivered by the succeeding staple to the rolls, the female doubling-die G being made sufficiently long to receive a newly-bent staple in rear of a previous one, and so that the ends of the legs of the advance staple will not be forced out of the die G till some little time after the plain portions of the rolls have got a fair and steady hold of the staple to insure its straight and steady passage in between them, whereby the ends of the legs of the staple are properly directed to the dies D D in the rolls, which latter deliver the staple in their rear uniformly pointed at both of its ends—that is, at the ends of both its legs. Each time the doubling-plunger R retires a fresh feed of the wire *g* takes place, when the cutter P again advances and cuts off a fresh piece of wire for the formation of another staple. In this way a succession of staples, uniformly pointed at both of their ends, may be made automatically without heating the wire,

and with the greatest regularity and dispatch. The doubling-die G is made interchangeable to suit different sizes and widths of staples; likewise the doubling-plunger R made adjustable laterally and interchangeable to adapt it to different lengths of feed, as controlled by the adjustment of the slide J or its piece L, and different widths as well as lengths of staples. The cutter P and doubling-plunger R may be moved forward at their proper periods by cams or wipers *e' f'* on a shaft, T, which derives its motion by bevel-gear *h' i'* from the shaft H. The return movement of said cutter and doubling-plunger may be effected by weights or springs *k'*, or these devices may be otherwise operated in timely relation with the rolls or their dies, and with the wire-feeding mechanism.

What is here claimed and desired to be secured by Letters Patent is—

1. The combination, in a wire-feeding mechanism, of the slide J and independent slide M, in loose gear or connection with each other, as described, and the jaws E, having their forward arms or legs *q q* pivoted at *r r* to the slide M, and their rear arms pivoted at *n n* to the slide J or piece K connected therewith, substantially as specified.

2. The combination of the cutter P with the wire-feeding jaws E, the doubling-plunger R, the female doubling-die G, and the rolls C C, with their pointing-dies D D, essentially as shown and described.

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Witnesses:

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